

# ABSTRACT

1           An interface device and method for interfacing instruments to a medical procedure  
2 simulation system serve to interface peripherals in the form of mock medical instruments to  
3 the medical procedure simulation system computer to enable simulation of medical  
4 procedures. The interface device includes a housing having a mock bodily region of interest  
5 to facilitate insertion of a mock instrument, such as an endoscope tube, into the interface  
6 device. The mock bodily region of interest may be pivotable to simulate various patient  
7 orientations. The instrument is engaged by a capture mechanism in order to measure  
8 rotational and translational motion of the instrument. An actuator is disposed within the  
9 interface device to provide force feedback to the instrument. The measured motion is  
10 provided to the computer system to reflect instrument motion on the display during the  
11 simulation. Alternatively, the interface device may be configured to accommodate instrument  
12 assemblies having a plurality of nested instruments (e.g., sheath, catheter and wire), whereby  
13 the interface device individually grasps, measures manipulation of and provides force  
14 feedback to the nested instruments. In addition, the interface device may be configured to  
15 simultaneously accommodate a plurality of independently inserted instruments.